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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,673	03/18/2004	Kazuhiko Arai	17549	5936

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EXAMINER

AKANBI, ISIAKA O

ART UNIT PAPER NUMBER

2877

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

31

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/803,673	ARAI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Isiaka O. Akanbi	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-27 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>18 March 2004</u> <u>4/7/26/04</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statement file 18 March 2004 has been entered and reference considered by the examiner.

### *Drawings*

The examiner approves the drawings filed 26 July 2004.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 6-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Migdal et al. (6,549,288 B1).

As regard to claims 1, 14-16, 18, 25 and 27, Migdal discloses a 3-dimensional image acquisition apparatus/method for acquiring images to be used for 3-dimensionally reconstructing an object by picking up the object twice or more than twice in an image acquisition set including picking up at least once the object carrying a pattern projected onto it comprising of the following:

a camera (103) configured pick up the object, a projection light source (104/105) configured to project light for the purpose of projecting the pattern onto the object,

a light projection information memory (108) configured to store information on projection of light including information on the time for projecting light for the purpose of projecting the pattern in the image acquisition set, an image acquisition progress information memory

(108/110) configured to store information on the progress of image acquisition in the image acquisition set and

a controller (109) configured to control the projection of light by the projection light source and the picking up by the camera on the basis of the information on projection of light stored in the light projection information memory (108/110) and the information on the progress stored in the image acquisition progress information memory (108/110)(fig. 1)(col. 6, line 28-65).

As to claims 2 and 3, according to claim 1, Migdal discloses wherein the information on projection of light (104/105) includes information on the projection light source output from the projection light source and the information on projection of light includes information on the camera output from the camera (col. 6, line 53-65).

As to claim 6, Migdal discloses a photometric section (103/108) to configured acquire information on the luminance of the object (102), wherein the information on projection light includes information on the luminance acquired by the photometric (i.e. CCD detector) section (col. 6, line 28-34).

As to claim 7, Migdal discloses wherein the camera includes one imaging optical system, and the apparatus further comprises a stereo-adaptor having a light path dividing optical system adapted to enable the camera to acquire a plurality of images from different angles when connected to the imaging optical system of the camera (col. 2, line 67-col. 3, line 1-5).

As to claim 8, Migdal discloses an illumination light source (104/105) configured to illuminate the object when picking up the object by the Camera (fig. 1).

As to claim 9, Migdal discloses wherein the information on projection of light includes information on the illumination light source output from the illumination light source (figs. 2a and 2b).

As to claim 10, Migdal discloses an operation section (108/109) configured to input the information on projection of light (col. 6, line 50-53).

As to claim 11, Migdal discloses wherein the projection light source is adapted to project light at a first imaging session of the image acquisition set (fig. 1)(col. 6, line 54-57).

As regard to claim 12, Migdal discloses a light projection unit to be connected to a camera adapted to continuously picking up an object and output timing signals for one the timing of picking up the object and the timing projecting light for the purpose of projecting a pattern onto the object comprising of the following:

a projection light source (104/105) configured to project light for the purpose of projecting the pattern onto the object, a light projection information memory (108/110) configured to store information on projection of light including information on the time for projecting light for the purpose of projecting the pattern in the continuous picking up, an image acquisition progress information memory (108/110) configured to store information on the progress of the continuous picking up and a controller (109) configured to control the projection of light by the projection light source in synchronism with the timing signal and on the basis of the information on projection of light stored in the light projection information memory (108/110) and the information on the progress stored in the image acquisition progress information memory (108/110)(fig. 1)(col. 6, line 28-65).

As to claim 13, Migdal discloses wherein the projection light source (104/105) is adapted to project light synchronism with a first imaging session of the continuous picking up (col. 6, line 54-57).

As to claims 17, 19, 22 and 24, Migdal discloses wherein an image acquisition is conducted on the basis of the information on projection of light (104/105) when the information on the progress indicates that a second or a subsequent imaging session in progress (col. 6, line 44-60).

As regard to claims 20, 21 and 23, Migdal discloses a method of projecting light from a light projection unit adapted to continuously pick up an object and project light for the purpose of projecting a pattern on the object while conducting the picking up comprising of the following:

acquiring information on projection of light (104/105) including information on the time for projecting light for the purpose of projecting the pattern in the continuous picking up, storing (108/110) information on the progress of the continuous picking up and projecting light for purpose of projecting the pattern in synchronism with the picking up and on the basis of the information acquired in the acquiring information and the information on the progress stored in the storing information (107)(fig. 3)(col. 6, line 5-5)(col. 6, line 44-60).

As regard to claim 26, Migdal discloses a light projection unit to be connected to a camera adapted to continuously picking up an object and output timing signals for one of the timing of picking up the object and the timing of projecting light for the purpose of projecting a pattern onto the object comprising of the following:

projection light emission means (104/105) for projecting light for the purpose of projecting the pattern onto the object (102), light projection information storing means

(108/110/111) for storing information on projection of light including the projection emission means and information on the time for projecting light for the purpose of projecting the pattern in the continuous picking up, image acquisition progress information storing means (108/110/111) for storing information on the progress of the continuous picking up and control means (109) for controlling the projection light by the projection light emission means in synchronism with the timing signal and on the basis of the information on projection of light stored the light projection information storing means and the information on the progress stored in the image acquisition progress information storing means (fig. 1)(col. 6, line 28-65).

### ***Allowable Subject Matter***

Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 4 and 5, the prior art of record, taken alone or in combination, fails to disclose or render obvious a proper image acquisition judging section configured to judge the appropriateness of the image acquisition that one of that is being conducted and has been conducted on the basis of one of the information on projection progress and an indicator configured to show the judgment result of the proper image acquisition judging section. Further the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the controller adapted reset the image acquisition progress information memory so as to make store the progress information necessary for a first of light and the information on the imaging session when the proper image acquisition judging section determines that the current image acquisition is not appropriate.

### **Additional Prior Art**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teach of other prior art 3-dimensional image acquisition apparatus/method for acquiring images to be used for 3-dimensionally reconstructing an object by picking up the object twice or more than twice in an image acquisition set that may anticipate or obviate the claims of the applicant's invention.

**Conclusion**

**Fax/Telephone Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi  
June 5, 2006



**LAYLA G. LAUCHMAN**  
**PRIMARY EXAMINER**